

CLAIMS:

1. A method for starting an internal combustion engine with at least a valve that may be deactivated, the method
5 comprising:
 processing a signal indicative of a request to start said engine;
 closing at least an exhaust valve of at least a cylinder in said engine in response to said signal; and
10 maintaining said exhaust valve in said closed position until after a combustion event in said cylinder.
2. The method of Claim 1 wherein said exhaust valve is a valve that may be mechanically deactivated.
- 15 3. The method of Claim 1 wherein said exhaust valve is an electromechanically actuated valve.
4. The method of Claim 1 wherein said exhaust valve is
20 closed before said engine begins to rotate and maintained closed until after a combustion event in said cylinder occurs, and then the valve is opened.
5. The method of Claim 1 wherein an operator activating
25 a switch generates said signal.
6. The method of Claim 1 wherein said signal is signal generated remotely from a vehicle.
- 30 7. The method of Claim 1 wherein all exhaust valves are maintained closed until after a respective combustion event for said respective exhaust valve

8. A method for starting an internal combustion engine at least a valve that may be deactivated, the method comprising:

- processing a signal indicative of a request to
5 start said engine;
- closing at least an exhaust valve in at least a cylinder of said engine in response to said signal;
- determining engine position in response to said signal;
- 10 injecting fuel into said cylinder based on said determined engine position;
- combusting said injected fuel in said cylinder;
- and
- maintaining said exhaust valve closed until
15 after combustion of said injected fuel in said cylinder.

9. The method of Claim 8 wherein said exhaust valve is a valve that may be mechanically deactivated.

20 10. The method of Claim 8 wherein said exhaust valve is an electromechanically actuated valve.

11. The method of Claim 8 wherein an operator activating a switch generates said signal.

25 12. The method of Claim 8 wherein said signal is signal generated remotely from a vehicle.

13. The method of Claim 8 wherein said injected fuel
30 produces a lean air-fuel mixture in said cylinder.

14. The method of Claim 8 wherein said injected fuel produces a rich air-fuel mixture in said cylinder.

15. The method of Claim 8 wherein said injected fuel produces a stoichiometric air-fuel mixture in said cylinder.

5 16. A method for starting an internal combustion engine with electromechanically actuated valves, the method comprising:

processing a signal indicative of a request to start said engine;

10 closing at least an exhaust valve of said engine in response to said signal;

determining engine position in response to said signal;

adjusting at least an intake valve timing for
15 at least a cylinder of said engine based on said determined engine position;

injecting fuel into said at least a cylinder of said engine;

combusting said fuel in said at least a
20 cylinder of said engine; and

operating said at least an exhaust valve in said at least a cylinder after said combustion in said at least a cylinder.

25 17. The method of Claim 16 wherein said adjusting at least an intake adjustment for at least a cylinder of said engine opens said at least an intake valve until an intake stroke in said at least a cylinder.

30 18. The method of Claim 16 wherein said injected fuel produces a lean air-fuel mixture in said at least a cylinder.

19. The method of Claim 16 wherein said injected fuel produces a rich air-fuel mixture in said at least a cylinder.

5 20. The method of Claim 16 wherein said injected fuel produces a stoichiometric air-fuel mixture in said at least a cylinder.

21. A method for starting an internal combustion engine with electromechanically actuated valves, the method comprising:

processing a signal indicative of a request to start said engine;

15 closing at least an intake valve of at least a cylinder in said engine in response to said signal;

opening at least an exhaust valve of said at least a cylinder in said engine in response to said signal;

20 determining engine position in response to said signal;

closing said at least an exhaust valve in said at least a cylinder before a first air induction event in said at least a cylinder;

25 injecting fuel into said at least a cylinder; opening said at least an intake valve in said at least a cylinder, inducting a desired air amount based on said injected fuel;

combusting said injected fuel in said at least a cylinder; and

30 opening said at least an exhaust valve in said at least a cylinder after said combustion in said at least a cylinder.

22. The method of Claim 21 wherein said injected fuel produces a lean air-fuel mixture in said at least a cylinder.

5 23. The method of Claim 21 wherein said injected fuel produces a rich air-fuel mixture in said at least a cylinder.

24. The method of Claim 21 wherein said injected fuel
10 produces a stoichiometric air-fuel mixture in said at least a cylinder.

25. A computer readable storage medium having stored data representing instructions executable by a computer
15 to control an internal combustion engine of a vehicle, said storage medium comprising:

instructions for processing a signal indicative of a request to start said engine;

instructions for closing at least an exhaust
20 valve of at least a cylinder in said engine, and maintaining said valve closed during rotation of said engine, in response to said signal; and

instructions for opening said at least an exhaust valve from said closed position after a
25 combustion event in said cylinder.